

WHAT IS CLAIMED IS:

- 1           1.     A separable apparatus to cushion and dampen vibration,  
2     comprising:  
3                 an overmold member composed of a mixture of an  
4     elastomeric material and a foaming agent, comprising:  
5                 a first non-foam layer; and  
6                 a second non-foam layer, in conjunction with the first layer,  
7     enveloping a micro-cellular foam layer.
- 1           2.     The separable apparatus of claim 1, wherein the elastomeric  
2     material is selected from a group comprising thermoplastic olefins,  
3     thermoplastic rubbers, thermoplastic polyurethanes, polyvinylchlorides,  
4     styrenic block copolymers, and combinations of such materials.
- 1           3.     The separable apparatus of claim 1, wherein the two non-  
2     foam layers and the foam layer are integrally molded with each other by  
3     injection molding of resin.
- 4           4.     The separable apparatus of claim 1, further comprising a  
5     substrate member coupled to the overmold member.
- 1           5.     The separable apparatus of claim 4, wherein the overmold  
2     member is mechanically attached to the substrate member.
- 1           6.     The separable apparatus of claim 4, wherein at least one of  
2     the non-foam layers is bonded to the substrate member.
- 1           7.     The separable apparatus of claim 4, wherein the substrate  
2     member is selected from a group of materials including: wood, metal,  
3     thermoplastic resin, thermoset resin, epoxy, ceramic, glass, and a  
4     combination of any two such materials.

1           8.     The separable apparatus of claim 1, wherein the thickness of  
2     the foam layer exceeds the combined thickness of the non-foam layers.

1           9.     The separable apparatus of claim 1, wherein the combined  
2     thickness of the non-foam layers exceeds the thickness of the foam layer.

1           10.    The separable apparatus of claim 1, wherein the combined  
2     thickness of the non-foam layers is equal to the thickness of the foam  
3     layer.

1           11.    The separable apparatus of claim 1, wherein the overmold is  
2     configured in a predetermined shape.

1           12.    A tool comprising:  
2                   a tool-head;  
3                   a grip coupled to the tool-head, with the grip having a base;  
4     and,  
5                   a separable overmold member disposed on the grip, with the  
6     overmold composed of a mixture of an elastomeric material and a foaming  
7     agent, comprising a first non-foam layer and a second non-foam layer, in  
8     conjunction, enveloping a micro-cellular foam layer.

1           13.    The tool of claim 12, wherein the elastomeric material is  
2     selected from a group comprising thermoplastic olefins, thermoplastic  
3     rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block  
4     copolymers, and combinations of such materials.

1           14.    The tool of claim 12, wherein the base is selected from a  
2     group of materials including: wood, metal, thermoplastic resin, thermoset  
3     resin, epoxy, ceramic, glass, and a combination of any two such  
4     materials.

1           15. The tool of claim 12, wherein the two non-foam layers and  
2 the foam layer are integrally molded with each other by injection molding  
3 of resin.

1           16. The tool of claim 12, wherein the overmold member is  
2 mechanically attached to the base.

1           17. The tool of claim 12, wherein at least one non-foam layer is  
2 bonded to the base.

1           18. The tool of claim 12, wherein the base has a plurality of  
2 pockets in the grip portion, wherein the separable overmold member is  
3 contained.

1           19. The tool of claim 12, wherein the thickness of the foam layer  
2 exceeds the combined thickness of the non-foam layers.

1           20. The tool of claim 12, wherein the combined thickness of the  
2 non-foam layers exceeds the thickness of the foam layer.

1           21. The tool of claim 12, wherein the combined thickness of the  
2 non-foam layers is equal to the thickness of the foam layer.

1           22. The tool of claim 12, wherein the separable overmold  
2 member is configured in a predetermined shape.

1           23. A method to make a separable apparatus for a tool in a mold,  
2 the separable apparatus to cushion and dampen vibration, with the  
3 separable apparatus including an overmold composed of a mixture of an  
4 elastomeric material and a foaming agent, comprising a first non-foam  
5 layer and a second non-foam layer, in conjunction, enveloping a micro-  
6 cellular foam layer, the method comprising the steps of :

7                   providing a substrate member in the mold;

8                   molding the overmold on the substrate member, wherein the  
9   apparatus is made;  
10                  removing the apparatus from the mold; and,  
11                  controlling environmental conditions to which the apparatus  
12   is subjected during one of a time the apparatus is in the mold and a time  
13   after the apparatus is removed from the mold.

1           24.   The method of claim 23, including the step of removing the  
2   apparatus from the substrate member.

1           25.   The method of claim 24, including the step of controlling the  
2   time the apparatus is on the substrate member.

1           26.   The method of claim 23, including the step of controlling the  
2   temperature of the elastomeric material.

1           27.   The method of claim 23, including the step of controlling the  
2   mold temperature.

1           28.   The method of claim 23, including the step of controlling the  
2   time the apparatus is in the mold.

1           29.   The method of claim 23, including the step of controlling the  
2   thickness of the elastomeric material by configuring the geometry of one  
3   of the substrate member and mold.

1           30.   The method of claim 23, including the step of controlling the  
2   ambient air temperature around the apparatus after removal from the  
3   mold.

1           31.   The method of claim 23, including the step of mixing the  
2   elastomeric material and foaming agent in a predetermined ratio.

1           32.    The method of claim 23, including the step of selectively  
2   restraining the overmold.

1           33.    A tool comprising:  
2                   a tool-head;  
3                   a grip coupled to the tool-head, with the grip defining a void;  
4   and,  
5                   a separable overmold member configured to fill the void, with  
6   the overmold composed of a mixture of an elastomeric material and a  
7   foaming agent, comprising a first non-foam layer and a second non-foam  
8   layer, in conjunction, enveloping a micro-cellular foam layer.

1           34.    The tool of claim 33, wherein the elastomeric material is  
2   selected from a group comprising thermoplastic olefins, thermoplastic  
3   rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block  
4   copolymers, and combinations of such materials.

1           35.    The tool of claim 33, wherein the two non-foam layers and  
2   the foam layer are integrally molded with each other by injection molding  
3   of resin.

1           36.    The tool of claim 33, wherein the overmold member is  
2   mechanically attached to the grip.

1           37.    The tool of claim 33, wherein at least one non-foam layer is  
2   bonded to the grip.

1           38.    The tool of claim 33, wherein the grip has a plurality of  
2   pockets configured to contain the separable overmold member.

1           39.    The tool of claim 33, wherein the thickness of the foam layer  
2   exceeds the combined thickness of the non-foam layers.

1           40.    The tool of claim 33, wherein the combined thickness of the  
2 non-foam layers exceeds the thickness of the foam layer.

1           41.    The tool of claim 33, wherein the combined thickness of the  
2 non-foam layers is equal to the thickness of the foam layer.

1           42.    The tool of claim 33, wherein the separable overmold  
2 member is configured in a predetermined shape.

1           43.    A tool comprising:  
2                   a means for working;  
3                   a means for holding coupled to the means for working, with  
4 the means for holding defining a void; and,  
5                   a separable overmold member configured to fill the void, with  
6 the overmold composed of a mixture of an elastomeric material and a  
7 foaming agent, comprising a first non-foam layer and a second non-foam  
8 layer, in conjunction, enveloping a micro-cellular foam layer.

1           44.    The tool of claim 43, wherein the elastomeric material is  
2 selected from a group comprising thermoplastic olefins, thermoplastic  
3 rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block  
4 copolymers, and combinations of such materials.

1           45.    The tool of claim 43, wherein the two non-foam layers and  
2 the foam layer are integrally molded with each other by injection molding  
3 of resin.

1           46.    The tool of claim 43, wherein the overmold member is  
2 mechanically attached to the means for holding.

1           47.    The tool of claim 43, wherein at least one non-foam layer is  
2 bonded to the means for holding.

1           48.    The tool of claim 43, wherein the means for holding has a  
2   plurality of pockets configured to contain the separable overmold member.

1           49.    The tool of claim 43, wherein the thickness of the foam layer  
2   exceeds the combined thickness of the non-foam layers.

1           50.    The tool of claim 43, wherein the combined thickness of the  
2   non-foam layers exceeds the thickness of the foam layer.

1           51.    The tool of claim 43, wherein the combined thickness of the  
2   non-foam layers is equal to the thickness of the foam layer.

1           52.    The tool of claim 43, wherein the separable overmold  
2   member is configured in a predetermined shape.

1           53.    A handle for a tool, comprising:  
2                   a base having a grip portion and a tool-head portion; and,  
3                   a separable overmold member associated with the grip  
4   portion, with the overmold composed of a mixture of an elastomeric  
5   material and a foaming agent, comprising a first non-foam layer and a  
6   second non-foam layer, in conjunction, enveloping a micro-cellular foam  
7   layer.

1           54.    The handle of claim 53, wherein the elastomeric material is  
2   selected from a group comprising thermoplastic olefins, thermoplastic  
3   rubbers, thermoplastic polyurethanes, polyvinylchlorides, styrenic block  
4   copolymers, and combinations of such materials.

1           55.    The handle of claim 53, wherein the base is selected from a  
2   group of materials including: wood, metal, thermoplastic resin, thermoset  
3   resin, epoxy, ceramic, glass, and a combination of any two such  
4   materials.

1           56.    The handle of claim 53, wherein the two non-foam layers  
2   and the foam layer are integrally molded with each other by injection  
3   molding of resin.

1           57.    The handle of claim 53, wherein the separable overmold  
2   member is mechanically attached to the base.

1           58.    The handle of claim 53, wherein at least one non-foam layer  
2   is bonded to the base.

1           59.    The handle of claim 53, wherein the base defines at least  
2   one pocket in the grip portion configured to receive the separable  
3   overmold member.

1           60.    The handle of claim 53, wherein the thickness of the foam  
2   layer exceeds the combined thickness of the non-foam layers.

1           61.    The handle of claim 53, wherein the combined thickness of  
2   the non-foam layers exceeds the thickness of the foam layer.

1           62.    The handle of claim 53, wherein the combined thickness of  
2   the non-foam layers is equal to the thickness of the foam layer.

1           63.    The handle of claim 53, wherein the overmold is configured  
2   in a predetermined shape.